ROADS ARE TOPIC OF NIGHT SESSION OF THE CIVIC CONVENTION

ENGINEERS HOLD SWAY AT NIGHT SESSION OF TERRITORIAL BODIES

'Work Together' Is Keynote of Masterly Addresses, Well Delivered

Civil Engineer Guy H. Gere, in charge of the "good roads" work of the Inter-Island Civic Convention, put that part of the convention's program through last night with honors. Five engineers, himself included in the number—probably the best informed men in the territory on the subject of road construction—held the attention of the delegates last evening and gave them an impressive lesson in highway building.

"Let us work together to make the roads of the territory the best in the country. But let us not build new roads until we are sure to have sufficient money to maintain them."

That seemed to be the point-center of the addresses last night and brought applause whenever recurred to. Guy H. Gere, H. K. Bishop, L. M. Whitehouse, J. H. Moragne and Hugh M. Howell, the speakers on the program for the evening, all devoted some time to discussing the two points, and quite often their speeches were brought to a stop for a few seconds while the large gathering applauded.

The delegates convened last night in their quarters, the makai pavilion of the roof garden of the Young hotel. A large crowd was present. Many persons who have hitherto taken no part in the convention appeared at the meeting last evening to listen to the addresses on roads. The subject is one of the largest, and by many regarded as the most important to come before the convention. It is something which directly effects every person, as one speaker said.

Asks Big Bond Issue.

In addition to the speakers named, former Governor George R. Carter spoke briefly. He rose to thank the engineers for their papers; and Robert Shingle offered a resolution asking the legislature to appropriate, by means of a bond issue, $1,000,000 for territorial road construction. The entire session this morning was taken up with the same subject, that is, good roads, the chairman calling for a general discussion. C. E. Wright of Hilo also spoke.

Mr. Gere opened the meeting with his paper on the approved method of laying out city roads "to suit the whim of the grasping real estate dealer and short-sighted owners."

"Look," he said, "at the little subdivisions continually being foisted onto this city, cut up by alley ways 18 to 30 feet in width and laid out with absolutely no regard for either the present street system or its extension and growth."

Mr. Howell gave a brief history of the roads of the territory, showing their construction in the early days of travel when little more was demanded of them than to be a guide; and he contrasted this with the present requirements of a thoroughfare. The necessity of good roads for the development of a place he emphasized.

The paper of L. M. Whitehouse was devoted, mainly, to the cost of roads, their construction and renair. Parts of his speech are given below.

Mr. Moragne, in his paper read by Mr. Gere, he recounted the scheme adopted by the Kauai supervisors to keep their roads in good order. Mr. Moragne is the county engineer of Kauai and to him a good deal of the credit is given for the success of the highways of that island.

Mr. Bishop's speech was on state aid in road construction. He named the seven methods of raising money for road building: the direct tax, abutting property tax, private subscriptions, bond issues, statute labor, license tax and state aid. The majority of these, he pointed out, were no longer considered advisable methods of road building.

C. E. Wright, manager of the Volcano Stables at Hilo, delivered a very good paper on bad roads. He paid a very warm tribute to Kauai for the manner in which that island has handled the highway problem.

Road Matters Discussed.

Without preliminary discussion following the calling to order by the chairman, the papers dealing with road matters in all their different phases were read. The opening address was delivered by Guy H. Gere civil engineer for the Bishop Estate, whose topic was "Modern Road Service," and in which he set forth that the question of finances is first to be considered in the construction of modern highways. Mr. Gere's 12 years' experience in building roads in Hawaii has qualified him to handle his subject in a manner which brought applause from his audience, this being especially noticed when he expressed the opinion that it is better to maintain a properly constructed road than to build a new one. In part, he spoke as follows:

"Much is heard about 'permanent roads.' After all, there are only three things about a roadway that can lay claim to being permanent: The alignment, the gradient and the drainage system, and these only for so long as the road as a whole meets with the traffic requirements of the public. These requirements have changed so rapidly of late years that some roads, like battleships, are out of date before they are completed. The motor driven vehicle has revolutionized the demands on the roads of the country, and completely altered the conditions on which existing systems of road administration and the practice of road engineers were based. Outside of the city the road question has become the motor question, and the present road must be adapted to motor traffic, as the old roads can no longer satisfy the demands made on them.

"The question of road making has become an important economic and financial question for your consideration, especially the latter. Who is to bear the burden of the necessary expenditure for reconstruction and improvement and the added maintenance? How to pay for the new roadways which will open up our undeveloped areas to the settler, and for additional streets that will relieve the congested and insanitary conditions in the cities. This financial question is of the first importance and I trust will receive the careful consideration and study which you gentlemen are so eminently qualified to give. The proper drainage of the road bed is an absolute necessity if the road is to stand. Our weather conditions are no worse than in any other part of the world, but where you record rainfall by the foot, as in some of the wet districts here, it is easily to be seen that sufficient drainage means money, and lots of it, if the work is to be considered of a permanent nature.

Criticism Is Just.

"I have noticed that most boards of supervisors that have come into office are imbued with the idea that to properly emblazon their names on the next ballot, they must construct a little piece of road to which they can point with pride and say: "I did it," and that the construction of this same road of theirs is much more important than maintaining the roads of their predecessors. Maintenance has been neglected in many instances until the road is so far gone that it is impossible to do anything with it except reconstruct it. A great deal of just criticism comes from the public on this score. To my mind it is more important to properly maintain the constructed roads than it is to build new ones."

Mr. Gere concluded his address by reading an extract from a report of the City Plan Commission of Jersey City, N. J., dealing with road matters.

Interesting Address.

The first reference to the excellent system of roads maintained throughout the other islands was taken up when Hugh M. Howell, civil engineer of the county of Maui, read a paper entitled "The Development and Construction on Hawaii." This address was interesting as well as instructive, the speaker at first taking up a historical description of the first native roads on the Big Island.

The address in full follows:

"It is hard to say when road building first began in these islands, but it is certain that the early natives were great travelers and they were known to make long journeys on foot at a very rapid pace. Some of the simplest forms of the early roads can be seen today. Over the rough lava flows can be found round, flat, smooth stones, spaced about the distance of a man's stride, to protect the bare feet of the natives from being cut with the sharp lava. These stones were called ala; hence the term, alahui, a roadway, from ala, and nui, meaning large. In the windward districts over the steep palis, zigzag trails were built, following the line of least resistance, usually running from seashore up over the highest points of ridges and down to the sea again. These trails were naturally very steep, some of the ridges being six or seven hundred feet high. In places I have measured grades as steep as sixty per cent or six feet up in ten feet horizontal; and for long distances, thirty and forty per cent is common. To avoid the excessive wear of water, these trails were often paved with stones, generally round, slippery cobbles from the beach, these being the most available.

Bad for Good Roads.

"With the importation of horses, but few changes were made in the trails except in places to widen them slightly and lay the paving stones closer together. Both man and beast had to learn to negotiate these steep, slippery, zigzag paths, or stay at home. Even in the smoother country but little attention was paid to grade in laying out the trails. They almost always ran in the most direct line, over hills and across hollows. Then, when the missionaries came, and whisky, tobacco, and other forms of civilization were introduced, wheeled vehicles became necessary, these being drawn at first mostly by cattle. Of course when the grade was too steep or too rough, it was easier to hitch on two or three dozen more yoke of oxen than to build roads that horses and mules could pull over and very often the same old trails that were first picked out for foot trails, and later used for horse trails, were converted into wagon roads by simply widening them, regardless of grades except where they were so frightfully steep that it was fairly impossible to get over them. Where the original grade was very much over thirty per cent, it was sometimes cut down to about twenty-five per cent. Then, later, a progressive road board found ways and means to cut this down to twenty per cent, whereat there was much rejoicing. Strange to say, this light grade was later on found to be too steep to meet the demands of an increasing traffic, so by much saving, and sometimes borrowing, enough money was collected to cut a new road altogether. This was to be the last word in road building and was to settle this troublesome hill forever. When the masterpiece — liberally sprinkled with 'thank-you-marms'— was completed, its twelve and fifteen per cent grades were so easy compared with what had been endured for years that it was considered almost a level road. Although, with much yelling, cursing and cracking of whips, and throwing of stones, big teams of oxen or mules were able to get over the grade—with half loads, by the way — it was soon found that these steep places were the hardest to keep in repair. In spite of the "thank-you-marms" or cross surface drains, streams would form in the wheel ruts, which would grow into gullys, and every team of mules or yoke of oxen, straining in the harness, would dig deeper into the road surface and loosen up material to be washed away by the next rain. And so, after years of use and thousands of tons of hauling and great expense of repair work, it was found that this costly relocation would have to be discarded for a still lighter grade. This process has been repeated, as marks on many of our hillsides can testify, in some cases four or five times. In many instances the cost of a five or six per cent grade at the outset would have been considerably less than the amount expended in the various stages of reduction of the thirty per cent grades to ten per cent, to say nothing of the enormous cost of the hauling and upkeep. It is to be hoped, however, that this sort of false economy is about at an end.

William McKay of the Hilo Board of Trade, attired in uniform worn by delegates to the Civic Convention.

Automobile Big Factor.

"Until only recently the road surface in most of the country districts received but little treatment, except with the natural materials readily at hand, and then with little selection of the best materials available. When mud holes became so bad as practically to stop travel, a load of rocks and boulders, and likely as not rubbish and brush, were hauled and dumped into the hole. Where the road might develop at other places a crop of rocks, these were usually covered with a thin layer of earth that would be washed away by the first heavy rain or blown away during the dry weather. These processes were repeated over and over again. In some few localities where gravel or ac were handy, these materials were hauled and spread on the road but in a more or less haphazard fashion, and it was not until about 1895 that rock crushers and steam rollers were introduced into the country districts. Even then they were used only intermittently and sometimes not at all. Having been purchased by a beneficent central government and sent into the district without having been asked for, they were allowed to stand out in the weather for years until worthless.

"But the advent of the automobile and motor truck, which have certainly come to stay, has revolutionized the road industry and imposed new requirements. The automobile has annihilated distance and encouraged travel to such an extent that the question of road improvement is on everybody's tongue. The influence upon road construction of the motor driven vehicle is more towards better road surface rather than extremely light gradients. Most of the modern automobiles can take six or seven per cent grades without difficulty on the high gear, and for short distances, considerably steeper grades, but for economical and comfortable running they require a fairly smooth, hard, road surface. I am glad to say that this problem is now in a fair way to be solved. Without going into too much technical detail, I will briefly outline some methods that have been successfully employed in the county of Maui.

"The problem has been to find some method within our means. With nearly 200 miles of main arteries and 300 miles of branch roads, the thought of anything like a cost of $8000 or $10,000 a mile for high class asphaltic pavement only brings discouragement. By judicious selection and use of the natural materials at hand, which vary greatly in the different localities, much can be accomplished. In some districts there is a very firm, hard pan from a few inches to two or three feet beneath the surface loam. Cutting down to this hard pan, crowning and ditching produces a surface that resists wear and action of water very well, and requires only a slight amount of repair work. Firm red or yellow clayey soils, covered with about six inches of the coarsest sand to be had, well plowed and harrowed into the surface, and watered and rolled, make excellent roads, except during very heavy rains, and they dry hard and smooth in a few hours even after a heavy soaking if well crowned. The more rainy districts require an excess of sand. Salty, sticky ooze from fish ponds mixed with sand is also very good. If these roads become muddy, more sand is hauled on during wet weather, and allowed to become incorporated with the surface by the action of travel. Of course, these are not the most permanent roads, but they are inexpensive to build and maintain if repairs are made in time. On the most costly and best lap of road that can be built, maintenance work should begin within a few days after it is finished. Aa, or rought lava, or gravel from the gulches, where found, are the most logical materials to use. Attention must be given to properly grading these materials, and rolling and watering are very beneficial, but this we cannot always afford. A small amount of earth is desirable to act as a binder. Repairs should be made promptly where needed with the same kind of material. The gravel roads are sometimes given a surface coat of oil after they have been compacted by several months of travel. This is not always satisfactory, owing to the difficulty of getting the surface free from dirt, which prevents penetration of the oil, but if repairs are looked after promptly before holes develop, it makes a very fair road for light travel at a low cost.

Good Line of Rules.

"Near town and villages where travel is heavier, a better class of pavement is used, being a macadam of crushed stone treated with crude oil. This has been found to meet all the requirements of our travel when we have observed the following rules:

"1. The foundation, if not already so, must be made firm enough so as not to yield under the heaviest loads that might go over it, and this is done by thoroughly rolling the subgrade, and in some places by filling in soft spots with large rock.

"2. The rock to be No. 2 and 3 mixed, from the size of a hen's egg down to a walnut size, spread five inches deep, and rolled several times with a steam roller, until the surface is smooth and unyielding, liberally sprinkling at the same time.

"3. After allowing to dry out, every particle of dust, dirt, horse droppings, etc., are swept off and ordinary crude oil, the heaviest we can get—from 14 to 18 Baume—is poured on, putting on all that the rock will take, and rubbed in with brooms. If travel can be diverted this is allowed to stand for at least a week, until all the volatile constituents have evaporated. but if not, a thin coating of rock screenings, sometimes sand, just sufficient to take up the excess oil, is applied, and the road is opened. When the oil has "set" or become firm, another coat is applied and allowed to stand about a week. Then a thin layer of half-inch screenings is applied and the road is finished. These roads cost, exclusive of any grading except shaping and rolling the subgrade, from 50 cents to 70 cents a square yard complete, depending upon the cost of getting the rock. Where rock has to be hauled several miles, of course the cost would be still higher. The cost of maintenance, consisting of a light coat of oil about once a year, is slight, being about one cent per square yard a year, with oil at $1.50 a barrel at the tank. The cost of maintenance would be much greater if repairs were to be delayed until holes form in the surface skin of oil. One of the objections made to this method is that at times the surface peels up and holes form, which are very difficult to patch. This peeling can nearly always be traced to lack of cleanliness of the rock before oiling. It is very essential that the surface of the rock must be absolutely free from dust or litter of any kind; even a thin layer of ashes from the steam roller leaves a weak spot that will afterwards peel up as it keeps the oil from thoroughly coating and bonding the stones.

Room for Development.

"There has been as great a development in roadmaking from the viewpoint of administration as in technical matters — and there is much room for further development. The earliest roads were built under the direction of the chiefs by the common people, who were practically slaves. While this system may have its advantages on the score of economy, it is not likely that we should care to have it re-introduced at this day. Later on, certain roads were built by men as a sort of penalty for the infraction of rules or early laws. There is a road today on the island of Molokai that is still called the Puhipaka road, which was built by those who had broken an early edict against the use of tobacco. Later on, road boards were appointed, one for each district, consisting of three men appointed by the minister of the interior, who served without pay. The road boards had complete jurisdiction over all special road tax funds, and sometimes by permission of the minister of the interior or superintendent of public works, over appropriations made by the legislature from time to time for general or specific purposes. In the larger districts, the road boards appointed a road supervisor and a clerk and held more or less regular meetings. This system had its good as well as bad points. Members of the road board were supposed to be well acquainted with local conditions, being residents, and at least two of them were generally men of large affairs who would be expected to know the requirements and have some practical knowledge of general construction, but, as a matter of fact, it was not often that members of the road boards made any study of technical road-building and their funds were too limited to employ engineers except on rare occasions on small jobs. Indeed, the science of road-building is so recent that very little was known about it by anyone except in a very crude way.

"In the early nineties a vigorous policy was inaugurated to improve the roads throughout the group. Bonds were floated and appropriations made running into the millions. These appropriations were apparently for districts that had the strongest pull or contained the most vigorous kickers. Appropriations were made for the employment of a road engineer whose duty it was to lay out and supervise the construction of all the roads to be built under these vast appropriations throughout the group. Appropriations were to be expended by the superintendent of public works through the road engineer and at first independent of the road boards. This caused no little friction in cases where the local authorities differed from the road engineer concerning locations, grades, etc., of the proposed new roads. Later appropriations were made subject to the approval of the road boards of the districts in which the work was to be done. This caused further friction on account of divided authority, but on the whole there was a great deal of good work done, considering the magnitude of the undertaking.

Step in Advance.

"The most advanced step ever made toward the improvement of the road system was the inauguration of the county government, bringing the administration and authority over road matters as close to the people interested as possible; theoretically, at least, the majority of the people at the polls could get what they wanted. Some of the county boards of supervisors started at once to put their road matters on a business basis by creating the office of county engineer, or a similar office with a different title, and appointed technical men to have charge of at least all of the new road construction as well as of other public works. There seems to be a misconception at times on the part of some supervisors that the county act includes in the duties and powers of a supervisor the direct and personal superintendence of road construction, as a foreman or as a road overseer. This does not seem to me to be the intention of the county law, nor is it in general productive of the best results either practically or politically. There may of course be exceptions, but it does not always follow that political preference for the office of supervisor is any index to the possession of technical knowledge or training. It is proper and necessary for the supervisors to keep in touch with what is going on in their jurisdiction so that they may decide intelligently the very important questions that come before them, but it appears to me there can be very little argument against the policy of employing the most competent men to be had, especially fitted by education and experience to design and superintend all of such public work. A board of supervisors might be compared to a board of directors of a corporation. Corporation directors generally appoint a manager to carry on the work in which they are engaged who is chosen for his particular ability and training in handling such work. He is given from time to time instructions outlining the policy of the directors and it is left to him to execute these instructions. He is required to make reports at stated times showing progress and to give estimates of the cost of projects. It seems to me that there should be no reason why county work could not be carried out on much the same lines as that of any business corporation. This is the best way, in my mind, to eliminate many objectionable political features.

"The county engineer should be supplied with a liberal allowance for a library and current literature appertaining to his work and should not only be allowed but required to visit the other islands occasionally and inform himself, on the ground, what the other counties are doing. Similar problems are found on each island and in this way each engineer would get the advantages of the experience of all the others.

System to Lower Bids.

"The law prescribing the expenditure of money for all new work by contract is a good one, and its provisions could be extended still further in many cases to repair work when it is possible to specify it definitely. The more extensively this policy is pursued, the lower the bids will be, for not only would contractors be encouraged to equip themselves with economical working plants, but competition would be keener, for more men would naturally be interested in the business. It is notorious that men working for a government do not put as much energy into their work as do those working for private individuals. This is not confined to these islands either. If work is let by contract, it becomes necessary to make a survey, plans and specifications complete, which insures that the project has been much more thoroughly considered than if it were to be done by day's labor, and as the law provides that the money for such project must be provided for in advance before the contract can be let, the project is sure to be finished.

"The legislature of 1911 authorized large loans for the extension of belt road work on all the islands, introducing the innovation of handling these funds by commissions for each county. This feature has its good points as well as its bad ones. Theoretically, the administration of these funds is in the hands of the best men in the community, they being appointed by the governor without regard to party politics, but the system seems cumbersome and is likely to cause friction in some instances with the county fathers on account of dual authority over the same matters. Also the commissions might construct certain roads that the county authorities would not favor as to location and character, but would have to accept and maintain after being built. It is easy to see that men of perfectly honest intentions might thus work at cross purposes. It certainly is to be hoped that a simpler system can be worked out. Perhaps the whole matter pertaining to road work might be left to the boards of supervisors of the various counties under certain stated and regular territorial inspection and audit. It would seem to me, in any case, wise to have from time to time an audit of all county matters by some branch of the territorial government specially empowered for that purpose.

"In conclusion, it is fair to say that on the whole, throughout the territory the improvement in methods of road construction and administration in the last few years has been very great, and we have been complimented by visitors who tell us that our roads are much better than those in many parts of the mainland, but that should be taken only as encouragement for still further efforts. Really good work on our roads has only just begun, and it will take millions of dollars more, wisely expended, to make them what they should be, and, with the boost of such conventions as this what they shall be.

Talks on "Bad Roads."

"Bad Roads" was the subject of another interesting paper by C. E. Wright, manager of the Volcano Stables at Hilo, who said in the beginning that the only thing he could say of bad roads was that they stimulate a sentiment for good ones. That bad roads are as much a factor in the education as are good schools, was the gist of a strong point upon which he placed considerable emphasis, his reason for this opinion being that good roads furnish the means whereby communication may be carried on by one section of the country with another. It is only as we exchange ideas that development marks a period of time, he said, and personal contact with others is without doubt the greatest stimulator to human achievement. He spoke, in part, as follows:

"In all the islands from the extreme southern end of Hawaii to Kauai's most northern point has traveled the fame of J. H. Moragne as a road builder. Not only as a good road builder, but as a careful, safe, conservative builder. His supervision is a guarantee that his county will get its money's worth. This condition has existed in Kauai ever since the formation of county government. As a result Kauai has received more perhaps for her money than any of the counties. Moragne is a civil engineer of experience, good, sound judgment, honest and energetic. I can speak thus because I have known him intimately since 1898; he possesses the qualities that go to make up a practical road builder.

"What Kauai has accomplished all of the other counties may. It is simply a matter of putting in charge of the work the ability and character such as that mentioned. Paying a high salaried engineer, however, is no guarantee that good results will be obtained. He must be efficient and he must have authority in his hand. The right to command and receive good service is imperative.

Delusions of Science.

"I would not belittle science in any way but the surest road that I know of to utter failure is to trust the management of any enterprise or operation to one who only knows the scientific end of the job. Science and experience must go hand in hand for experience is the father of science. Out of years of experience a science has been evolved which combines in a small nucleus all the experience of man. Strange to say this science cannot be successfully imparted without the aid of practice—one must handle the tools to become a carpenter. Here we meet the stumbling block. In our anxiety to get the best we look at the star and forget the intervening space. I question very much the proficiency of any civil engineer as a road builder who has not had a large amount of practical experience.

"One of the greatest drawbacks in road construction in Hawaii county has been that the county has not had value received for the wages paid. Incompetent supervision, shiftless road overseers, and indolent laborers, coupled with haphazard methods, lack ing all known principles of decent construction have absorbed the road money, leaving no roads and worse politics, for it has been politics and not roads that received the thought and attention of our citizen labor voters.

"I am speaking of the period prior to 1913. This is true with two exceptions. (Laughter.)

Politics and Roads.

"Politics as already intimated has been the main interference with the proper spending of the road money. There is a law on our statutes prohibiting the employment of non-citizen labor on public works. Citizen labor being somewhat limited, and holding the elective power over office holders, has relegated to itself the position of dictator and so determines the amount of labor that shall be done in a day. They are the actual bosses as well as spenders of the public funds. The time-keeper, luna, road supervisor and sometimes the county supervisor, have taken orders from the pick and shovel man.

Sees Good Example.

"As a first aid to the result wanted I believe that the supervisors of each county should follow the example of Kauai—employ a county road supervisor with the qualities previously mentioned, viz: Good, sound judgment, experience, honesty and energy.

"As an earnest of my statement regarding the advent of good roads I will add that only a few years ago one could only travel by team out of Hilo on the north as far as Honomu—a distance of some twelve miles from there on, only a bridle trail from top to bottom of gulch after gulch furnished passage to Hamakua. Kohala and Kona had to stay at home or go on horseback. The total miles of road at that time was under 200 and nearly all bad. We now have over 400 miles of highway encircling the whole island and reaching into the outermost districts, all of which are accessible for automobiles; some two hundred miles are as good as can be found anywhere and to prove this we would like to have you all come and 'See Hawaii First.'

Tells of State Aid.

"State Aid in the Construction of Roads" was the subject of an address by H. K. Bishop, former superintendent of public works, and now engineer in charge of the Waiahole water tunnel. His address was lengthy, and well prepared, setting forth in a detailed manner the way in which the state and local units cooperate in the construction and maintenance of highways. He spoke in part as follows:

"There is nothing complicated about the principle of State aid as extended to the local units in road construction; in fact, it is so simple and common sense that it is a wonder it was not put into use many years ago. The State aid plan is the natural outcome of the financial conditions arising when a county or a local unit attempts to carry on road improvements on any large scale, and the financial burden is too great for the county or the unit to bear alone. "During the last 20 years practically all phases of the road question have been discussed quite extensively. Road congresses and conventions have been held, and speeches have been delivered, advancing so many reasons why we should have good roads, that there remains scarcely anything new to be said along that line. Proper methods of construction and the best ways of meeting new problems have also been repeatedly explained. I have always found that the people of Hawaii are progressive enough to want good roads, and to realize that the problem is how to obtain them.

"There may be said to be seven methods now in vogue for raising revenue for highway purposes. Briefly, these may be stated as follows: Statute labor, private subscriptions, automobile taxes, direct taxation, Assessments on abutting property, bond issues, and state aid.

Much Room for Work.

"The amount of State aid varies in the different states, from free engineering and advice to as high as 75 to 100 per cent of the cost of construction. In some states the amount of State aid extended to counties and districts is based on the assessed valuation, a much greater aid being extended to the poorer counties and districts. All work is usually handled under the direction of the State highway department, although every effort is made to secure local co-operation and interest, and to enlist the local authorities and officers as partners in all highway improvements. The laws are usually so framed that the county has its own share of work to do, so that the county's approval must be secured to all plans for such improvements. Usually the initiative is with the county, and highways are improved only upon application of the county. The state offers to extend aid to the county provided the county asks for it, and will do its part toward carrying on the work of highway improvement.

It may be advanced as an argument that the system of State aid robs the county of a certain amount of authority and patronage incidental to such road work. I do not think this has proven to be the case, however. There is plenty of room for work, and the county usually, though being relieved in a large measure of the burden of the cost of the more important roads, is enabled to use its funds and forces in the construction and maintenance of the less important highways. I am of the opinion that the experience of the Territory of Hawaii will be similar to that of the forty states referred to, who have finally adopted the principle of State aid in highway construction, and that you will eventually have a territorial highway department."